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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, D.C. 20554

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| In the Matter of | ) | |
| | ) | |
| Allocation of the | ) | ET Docket No. 93-40 |
| 219-220 MHz Band for Use by | ) | RM-7747 |
| the Amateur Radio Service | ) | |

To: The Commission

## COMMENTS

Fred W. Daniel (Daniel) d/b/a Orion Telecom respectfully submits his Comments to the Commission's Notice of Proposed Rule Making in the above captioned matter. In support of his position, Daniel shows the following.

### Daniel Has A Strong Interest In This Matter

Daniel is the licensee of an Automated Maritime Telecommunications System (AMTS) authorized to serve the Pacific Coast of the United States. Accordingly, he clearly has an interest in the proposed reallocation of the ship station side of the AMTS channels to the Amateur Radio Service.

Daniel is an Amateur licensee (W6FNO), having a life long fascination with radio communications. For many years, Daniel has operated a 2 meter repeater system in the Los Angeles, California, area which provides emergency aid to motoring Amateurs. The attended system handles some 3600 emergency incidents per year, and the system has been repeatedly commended for its contribution to the public safety.

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While he regrets the reallocation of the 220-222 MHz band as much as other Amateurs, Daniel recognizes that Amateurs were not making sufficient use of it to justify continued allocation to them, compared to the extent of demand for new industrial and public safety channels. Much as he enjoys and is dedicated to Amateur radio, Daniel must defend his ability to provide the maritime radio communications service which he has been authorized to render to the boating public, which are daily exposed to situations far more perilous than are to be found on the Los Angeles freeways.

Three AMTS systems have been authorized to date. Waterway Communications is authorized to serve the Mississippi River System, while Paging Systems, Inc. and Daniel have been authorized to construct and operate systems along the Pacific Coast. Although the Coast Guard's definition of "navigable waterway" is quite broad, it appears that there is only a small percentage of the United States territory within which an AMTS system has a reasonable prospect of financial success. The proposed Rules would devastate those limited opportunities for automated maritime communications service.

## Traditional Public Coast Service Is Withering

As the Commission is aware, the traditional, manual Public Coast station service appears to be deteriorating, with many applications having been granted under Section 214 of the Communications Act of 1934 in recent months, permitting Public Coast stations to discontinue unprofitable service, with even major operators closing their doors, rather than continuing to sustain apparently irreversible losses. In the face of what appears to the passing of the era of

manual service, Daniel has been willing to undertake construction and operation of an advanced, automated Maritime public correspondence service and should be provided a reasonable opportunity for sucess, free of harmful interference to his subscribers' communications.

The small number of operating and nascent AMTS systems, together with the relative unlikelihood that AMTS systems will be widespread across that nation, implies that the Commission should take all steps necessary to avoid impairing the chances for development of AMTS service. Because little of the nation's territory is likely ever to see AMTS service, the Commission can well afford to adopt protection criteria for AMTS stations which are sufficiently stringent that the operation of Amateur auxiliary point-to-point links will be certain not to disrupt AMTS operation.

## AMTS Needs High Levels Of Protection

Automated public correspondence service differs from manual service in a number of significant ways, the most important of which for purposes of this proceeding is that an AMTS system relies on the integrity of data communications between ship and coast stations to establish and maintain communications. The existence of human operators at both ends of the manual public correspondence radio link provides the opportunity for either operator intelligently to recognize and repeat mutilated information or to await relief from interference. However, because AMTS systems have no provision for continuous human monitoring or intervention in their operation, an AMTS system relies entirely on an interference free channel for the set-up and maintenance of calls. In contrast to a manual system, in which even a technically

unsophisticated user can recognize that he has either not heard the coast station clearly or that his information has been misunderstood, the user of an automated system will know only that "something isn't working" when his calls are disrupted by interference.

From the perspective of the commercial radio communications service provider, "something isn't working" translates into abandoned call attempts, lost calls, customer dissatisfaction, and loss of business. As the Commission knows, most users of commercial radio communications service do not have an understanding of the technical aspects of radio. The high rate of "churn" -- customers endlessly moving from one system to another in hopes of satisfaction -- in the radio paging business is staggering and is well known to the Commission. The user of an automated commercial communications system knows only that he has not always been able to make or receive calls. Not being in a position to remedy the situation any other way, the customer looks elsewhere for service.

In view of the absolute reliance of an AMTS system on an interference free environment, the Commission should carefully consider the extent to which an AMTS channel needs to be kept free of intruding energy. Section 80.773 of the Commission's Rules provides that where a manual VHF public correspondence channel is shared, "the ratio of desired to undesired signal strengths must be at least 12 dB within the service area of the station," 47 C.F.R. §80.773. Extensive experience with fully automated trunked systems in the 800 and 900 MHz bands has shown that a substantial "D/U ratio" is required to assure reliable operation. Published reports have indicated that the popular Motorola brand trunking system requires a D/U ratio of from 14

to 17 dB to assure reliable operation. In its Notice of Proposed Rule Making in PR Docket No. 93-60 (FCC 93-140 Released April 7, 1993), the Commission proposes to adopt a D/U ratio of 18 dB for stations above 800 MHz.[1] Clearly, the Commission recognizes that a substantial D/U ratio is required to make automated system operation possible. Unfortunately, the Commission's proposal does not provide a D/U ratio which will assure reliable operation of an AMTS system.

As shown by the map attached hereto as Exhibit I, Orion has been granted authority for an AMTS system at Los Angeles, California.[2] The map demonstrates the predicted 35 dBu

at a power of up to 50 watts at a distance of as little as 50 miles from an AMTS station would probably destroy the AMTS service.

The Commission proposed to allow an Amateur station to operate an auxiliary station at a distance of 50 miles or more from an AMTS station without the AMTS operator's having any power to prevent the operation. As Daniel's Los Angeles map demonstrates, rather than providing an adequate positive D/U ratio to protect an AMTS station, the Commission proposes [redacted]

In view of the necessity of providing adequate signal level protection to AMTS operations, the Commission should terminate the instant proceeding without action. Providing a zone of protection 1150 miles wide (575 miles to the east and 575 miles to the west of the Mississippi River) for the Watercom system, a zone of protection at least 575 miles eastward from the Pacific Coast and at least 575 miles westward from the Atlantic Coast would leave only the Mountain States and the northern Central States within which the proposed Amateur stations could operate without causing harmful interference to AMTS systems. Since so little of the land area of the nation, consisting of only a relatively sparsely populated region, would be able to benefit from a workable set of standards, the Commission should abandon this proceeding without action.

## Sharing A Band Between Wideband Fixed and Narrowband Mobile Systems Is Impracticable

There is another technical factor which militates against successful operation of Amateur point-to-point stations in the 219-220 MHz band. At paragraph seven of its NPRM, the Commission indicated that it intended the proposed allocation to be used for "intercity wideband packet radio networks." As the Commission knows, the transmission of wideband data signals requires the use of bandpass filters which do not have steep skirts. If sharply cutting bandpass filters are used, they necessarily rotate the phase of the signal excessively, resulting in unintelligible data transmissions. Therefore, the proposed stations would need to use bandpass

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Commission's proposal which will be necessary to provide for reliable AMTS operation, the Commission needs to limit Amateur stations to a distance of 575 miles from AMTS stations, absent the express consent of the AMTS operator.

filters having gently falling skirts, which means that the stations would emit substantial amounts of out of band energy. The Commission has not proposed any emission mask or specific out of band emission limitations for the proposed operations which would attempt to insure protection of narrowband AMTS mobile systems. Neither has it proposed any coordination standards which an Amateur system would have to meet to protect against emissions on frequencies used by specific AMTS stations.

Protecting wideband television receivers against wideband interference is a "snap" compared to protecting narrowband AMTS systems against stray energy in the mobile transmit

band with the proposed wideband Amateur stations is entirely impracticable and would render AMTS systems incapable of reliable operation.

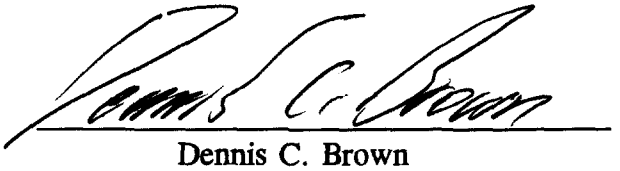
## The Instant Proceeding Is In Conflict With Other Proposed Commission Policy

The thrust of the instant proceeding is at odds with the Commission's proposed action in PR Docket No. 92-235, in which the Commission proposes to enhance land mobile spectrum efficiency by, among other means, reducing permissible heights and powers to reduce unnecessary coverages. At footnote one to its NPRM, the Commission stated its intention that the band be used for point-to-point "intercity links", rather than for any local service. It would appear that the Commission expects Amateur operators to use the proposed allocation for stations having a range of 60 to 100 miles, in contrast to commercial point-to-point systems in the 4 GHz band which typically have a range of 30 to 40 miles, and compared to local systems which have a coverage need of some 15 miles. Allowing Amateurs to use the VHF band for long range communications would not only fly in the face of the Commission's proposals in PR Docket No. 92-235, but would allow the Amateur stations to distribute excessive levels of off-axis signals, reducing the number of users who could share the same spectrum. Because its proposals in the instant proceeding are clearly in conflict with its proposals for regulating the economically significant industrial land mobile community, the Commission should terminate the instant proceeding without action.

## Conclusion

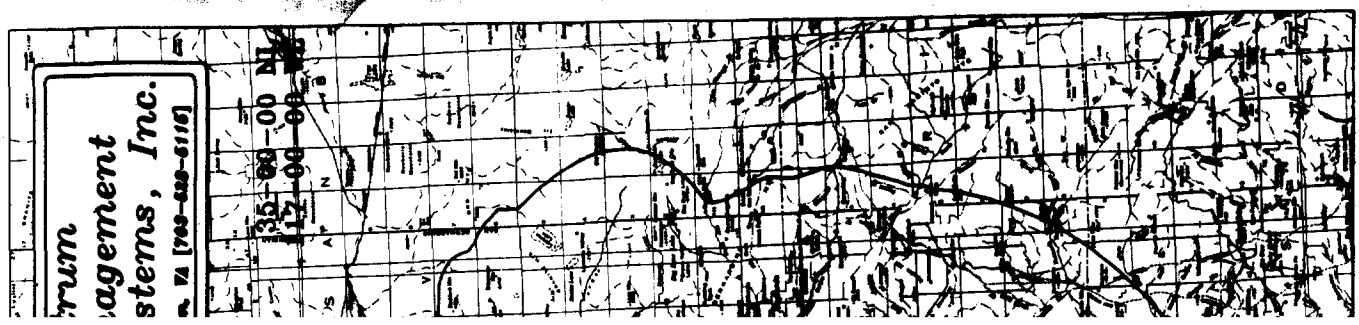
For all the foregoing reasons, Daniel respectfully requests that the Commission terminate the instant proceeding without action.

Respectfully submitted,
FRED W. DANIEL d/b/a
ORION TELECOM

By 
Dennis C. Brown

Brown and Schwaninger
1835 K Street, N.W.
Suite 650
Washington, D.C. 20006
202/223-8837

Dated: June 15, 1993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